REMARKS

Claims 1-15 were previously pending in the application and Claims 13 and 14 were previously withdrawn. By the Amendment, Claims 1-2 and 8-9 are currently amended, Claims 13 and 14 are canceled without prejudice, new Claims 16-30 have been added, and Claims 3-7, 10-12 and 15 remain unchanged.

The claims stand rejected under the cited prior art of record. Specifically, Claims 1-13 and 15 were rejected under 35 USC §103(a) as being unpatentable over Aue (US 3,633,783) in view of Schmidberger (DE 1,004,207). In addition, Claims 1-13 and 15 were rejected under 35 USC §103(a) as being unpatentable over Shuko (JP 2-136683) in view of Schmidberger.

Independent Claim 1 recites a heat insulated wall, comprising: a connecting profile; an evacuable heat insulating material; two outer covering layers having contours and disposed at a distance from one another, said two outer covering layers connected to said connecting profile running along said contours with a vacuum-tight seal, said two outer covering layers together with said connecting profile enclosing an air evacuated intermediate space forming a vacuum within the heat insulated wall and said evacuable heat insulating material being disposed within the intermediate space, at least one of said two outer covering layers having an aperture formed therein; a tube section including two end sections, at least one of said two end sections having a circumferentially positioned flange-shaped expanded and flattened region; and said at least one flange-shaped expanded and flattened region having an end surface facing away from said tube section and being fixed to said at least one of said two outer covering layers at said aperture with a vacuum-tight seal and being formed to compensate for positional imprecisions between said aperture and said tube section.

In the Office Action dated November 2, 2004, the Examiner stated the claim limitations reciting "that the layers are connected in a vacuum-tight manner, that the space between the layers is evacuated, that the tube is fixed in a vacuum-tight manner to the layers, and that the flatten portions of the tubes are attached to the layers via a beam-welding process" were irrelevant and given no patentable weight. Applicants believe the claims were patentable in their previous form. However, to further prosecution, Applicants have amended the relevant claims to more clearly recite the invention and

satisfy the Examiner's concerns. Applicants note that these amendments are being made to provide patentable weight to limitations already present in the claims and are not being made to overcome prior art rejections. In the previous Office action, the Examiner merely disregarded these limitations and did not identify prior art having these limitations. Applicants respectfully request reconsideration of the amended claims.

Aue discloses a refrigeration cabinet having an inner liner (14) and an outer wrapper (12). The inner liner (14) and the outer wrapper (12) are connected to one another with a breaker strip (16) extending around a perimeter of the inner liner (14) and the outer wrapper (12). The breaker strip (16) provides a seal between the inner liner (14) and the outer wrapper (12) and a polyurethane foam is disposed therebetween. Aue specifically teaches that the breaker strip (16) is made from plastic.

Aue does not disclose, among other things, "two outer covering layers connected to said connecting profile running along said contours with a vacuum-tight seal, said two outer covering layers together with said connecting profile enclosing an air evacuated intermediate space forming a vacuum within the heat insulated wall," as recited in Claim 1.

Rather, Aue discloses a connection means for a refrigerator having walls with conventional foam heat insulation. Aue does not contemplate vacuum insulation technology. Aue provides no teaching or suggestion of "an air evacuated intermediate space forming a vacuum within the heat insulated wall" or "a vacuum-tight seal" that is used with vacuum insulation technology. Furthermore, nothing in Schmidberger teaches or suggests modifying the device to include these features. To the contrary, the seal and breaker strip (16) of Aue teaches away from vacuum insulation technology used in the present invention.

In vacuum insulation technology, air is evacuated from, or pumped out of, the space within an insulating chamber to create an evacuated space or vacuum. A vacuum-tight seal is used to maintain the vacuum within the insulating chamber at joints of the insulating chamber. The vacuum-tight seals substantially prevent air from leaking through the joints and retain the vacuum within the insulating chamber. The vacuum within the evacuated space resists the transfer of heat between the walls of the insulating chamber. Evacuating the insulating chamber and creating a vacuum creates an ***inward***

force, since the pressure within the chamber is generally lower than the surrounding atmospheric air. Therefore, the vacuum-tight seal must also withstand inward forces as a result of the vacuum.

In Aue, the breaker strip (16) is designed only to react to the ***outward*** forces imposed by the expanding foam within the cabinet. The entire purpose of Aue requires the breaker strip (16) to be made from a resilient, flexible material, such as plastic, that flexes when compressed by the outward urging force of the expanding foam. The breaker strip (16) is only designed to provide a seal after being exposed to this ***outward*** force from the foam. When exposed to the ***inward*** forces provided by "an air evacuated intermediate space forming a vacuum within the heat insulated wall," as recited in Claim 1, the breaker strip (16) of Aue would likely be completely ineffective and incapable of forming a vacuum-tight seal. Therefore, Aue teaches away from the claimed invention and there is no reasonable expectation of success of using the breaker strip (16) of Aue in a vacuum environment.

While Aue may disclose a seal sufficiently tight to retain the foam within the walls of the cabinet, such a seal is not suitable for providing a vacuum-tight seal. Aue does not teach or suggest a vacuum-tight seal that is used with vacuum insulation technology, and nothing in Aue teaches or suggests modifying the breaker strip (16) to include a vacuum-tight seal. Therefore, Aue does not teach or suggest a "vacuum-tight seal" or "an air evacuated intermediate space forming a vacuum within the heat insulated wall," as recited in Claim 1.

As acknowledged by the Examiner, Aue does not disclose "a tube section including two end sections, at least one of said two end sections having a circumferentially positioned flange-shaped expanded and flattened region." Also, as acknowledged by the Examiner, Aue does not disclose, among other things, "said at least one flange-shaped expanded and flattened region having an end surface facing away from said tube section and being fixed to said at least one of said two outer covering layers at said aperture with a vacuum-tight seal," as recited in Claim 1.

Schmidberger does not cure the defects of Aue. Schmidberger discloses a refrigerator housing having two walls (10, 12). A spacing piece (30) is connected to the

walls (10, 12). In Schmidberger, the walls (10, 12) and spacing piece (30) are made from a thermoplastic material.

Schmidberger does not disclose, among other things, "two outer covering layers connected to said connecting profile running along said contours with a vacuum-tight seal, said two outer covering layers together with said connecting profile enclosing an air evacuated intermediate space forming a vacuum within the heat insulated wall," as recited in Claim 1. Also, Schmidberger does not disclose, among other things, "said at least one flange-shaped expanded and flattened region having an end surface facing away from said tube section and being fixed to said at least one of said two outer covering layers at said aperture with a vacuum-tight seal," as recited in Claim 1.

Rather, Schmidberger, similar to Aue, also discloses a refrigerator having walls with conventional foam heat insulation and does not contemplate vacuum insulation technology. Schmidberger provides no teaching or suggestion of "an air evacuated intermediate space forming a vacuum within the heat insulated wall" or "a vacuum-tight seal" that is used with vacuum insulation technology. Furthermore, nothing in Schmidberger teaches or suggests modifying the device to include these features.

To the contrary, Schmidberger teaches away from vacuum insulation technology used in the present invention, including "an air evacuated intermediate space forming a vacuum within the heat insulated wall." Schmidberger specifically teaches that the walls (10, 12) and spacing piece (30) are made from plastic. Schmidberger elaborates that the material should be plastic because of the poor heat transfer qualities of plastic. Schmidberger further teaches that the walls (10, 12) and spacing piece (30) should specifically ***not*** be made of steel because the insulating device would not work as well.

As described above, an evacuated insulating chamber with a vacuum creates an ***inward*** force, since the pressure within the chamber is lower than the surrounding atmospheric air. Plastic is generally not rigid enough to maintain its shape when exposed to such inward forces. When exposed to the ***inward*** forces provided by "an air evacuated intermediate space forming a vacuum within the heat insulated wall," as recited in Claim 1, the walls (10, 12) of Schmidberger would bulge inwardly between the spacing pieces (30) as a result of the inward pressure from the vacuum. These inward bulges would harm the heat insulation properties of the walls and render the wall ineffective and

unsatisfactory for its intended use. Therefore, Schmidberger teaches away from the claimed invention and there is no reasonable expectation of success of using the walls (10, 12) of Schmidberger in a vacuum environment.

In addition, Schmidberger provides no teaching or suggestion that the spacing pieces (30) are connected to the walls (10, 12) with a vacuum-tight seal. As described above, Schmidberger would be ineffective when exposed to a vacuum within the walls (10, 12). Therefore, there is no motivation for providing vacuum-tight seals and Schmidberger provides no teaching or suggestion that the connections provide a vacuum-tight seal. In fact, one could argue that it would be advantageous for Schmidberger to have connections that were specifically ***not*** vacuum-tight seals to provide an equalization of pressure on either side of the walls (10, 12) and prevent deformation or bulges that would inhibit the heat insulation function of the walls (10, 12). Therefore, Schmidberger does not teach or suggest a "vacuum-tight seal" or "an air evacuated intermediate space forming a vacuum within the heat insulated wall," as recited in Claim 1.

To establish a prima facie case of obviousness, three basic criteria must be met. First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the references or to combine reference teachings. Second, there must be a reasonable expectation of success. Finally, the prior art reference (or references when combined) must teach or suggest all the claims limitations.

The prior art provides no suggestion or motivation to combine Aue and Schmidberger and there is no reasonable expectation of success for such a combination. However, since the combination of Aue and Schmidberger fail to even teach or suggest all the claim limitations, there is no need to elaborate on the suggestion or motivation to combine of the references.

For these and other reasons, Aue and Schmidberger, either alone or in combination, do not teach or suggest the subject matter defined by independent Claim 1. Therefore, Claim 1 is allowable. Claims 2-12 and 15 depend from Claim 1 and are allowable for the same reasons and also because they recite additional patentable subject matter.

Shuko discloses a heat insulating body box having an inner box (8) and an outer box (9) connected by a coupling member (18). A foamed insulating material (10) pushes and deforms the coupling member (18) against the opposing piece (17) by the pressure generated by the foaming of the insulation (10). The coupling member (18) is formed of a heat insulating material having elasticity.

Shuko does not disclose, among other things, "two outer covering layers connected to said connecting profile running along said contours with a vacuum-tight seal, said two outer covering layers together with said connecting profile enclosing an air evacuated intermediate space forming a vacuum within the heat insulated wall," as recited in Claim 1.

Rather, Shuko, similar to Aue and Schmidberger, also discloses a refrigerator having walls with conventional foam heat insulation and does not contemplate vacuum insulation technology. Shuko does not contemplate vacuum insulation technology. Shuko provides no teaching or suggestion of "an air evacuated intermediate space forming a vacuum within the heat insulated wall" or "a vacuum-tight seal" that is used with vacuum insulation technology. Furthermore, nothing in Shuko teaches or suggests modifying the device to include these features.

To the contrary, the seal of Shuko teaches away from vacuum insulation technology and the elements recited in Claim 1. As described above regarding Aue, an air evacuated intermediate space forming a vacuum within the heat insulated wall creates ***inward*** forces on the seal, since the pressure within the insulating chamber is lower than the surrounding atmospheric air. Therefore, the vacuum-tight seal must also withstand inward forces as a result of the vacuum.

Shuko, similar to Aue, discloses a seal only designed to react to the ***outward*** forces imposed by the expanding foam within the cabinet. The entire purpose of Shuko requires the coupling member (18) to be made from a flexible or deformable material that is deformed against the opposing piece (17) when pushed by the foaming pressure of the expanding foam. The coupling member (18) is only designed to provide a seal after being exposed to these ***outward*** forces from the foam. When exposed to the ***inward*** forces provided by "an air evacuated intermediate space forming a vacuum within the heat insulated wall," as recited in Claim 1, the coupling member (18) of Shuko would

likely separate from the opposing piece (17). Under these conditions, the coupling member (18) would be completely ineffective and incapable of forming a vacuum-tight seal. Therefore, Shuko teaches away from the claimed invention and there is no reasonable expectation of success of using the coupling member (18) of Shuko in a vacuum environment.

While Shuko may disclose a seal sufficiently tight to "improve the degree of air-tightness" when subject to the expanding foam, such a seal is not suitable for providing a vacuum-tight seal when subject to "an air evacuated intermediate space forming a vacuum within the heat insulated wall." Shuko does not teach or suggest a vacuum-tight seal that is used with vacuum insulation technology, and nothing in Shuko teaches or suggests modifying the coupling member (18) to include a vacuum-tight seal. Therefore, Shuko does not teach or suggest a "vacuum-tight seal" or "an air evacuated intermediate space forming a vacuum within the heat insulated wall," as recited in Claim 1.

As acknowledged by the Examiner, Shuko does not disclose "a tube section including two end sections, at least one of said two end sections having a circumferentially positioned flange-shaped expanded and flattened region." Also, as acknowledged by the Examiner, Shuko does not disclose, among other things, "said at least one flange-shaped expanded and flattened region having an end surface facing away from said tube section and being fixed to said at least one of said two outer covering layers at said aperture with a vacuum-tight seal," as recited in Claim 1.

Schmidberger does not cure the defects of Shuko. As described above, Schmidberger merely discloses a refrigerator having walls with conventional foam heat insulation and does not contemplate vacuum insulation technology. Schmidberger provides no teaching or suggestion of an "air evacuated intermediate space forming a vacuum within the heat insulated wall" or "a vacuum-tight seal" that are used with vacuum insulation technology. Furthermore, nothing in Schmidberger teaches or suggests modifying the device to include these features. As described above, Schmidberger actually teaches away from providing a vacuum between the walls (10, 12). Therefore, Schmidberger does not teach or suggest a "vacuum-tight seal" or "an air evacuated intermediate space forming a vacuum within the heat insulated wall," as recited in Claim 1.

To establish a prima facie case of obviousness, three basic criteria must be met. First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the references or to combine reference teachings. Second, there must be a reasonable expectation of success. Finally, the prior art reference (or references when combined) must teach or suggest all the claims limitations.

The prior art provides no suggestion or motivation to combine Shuko and Schmidberger and there is no reasonable expectation of success for such a combination. However, since the combination of Shuko and Schmidberger fail to even teach or suggest all the claim limitations, there is no need to elaborate on the suggestion or motivation to combine of the references.

For these and other reasons, Shuko and Schmidberger, either alone or in combination, do not teach or suggest the subject matter defined by independent Claim 1. Therefore, Claim 1 is allowable. Claims 2-12 and 15 depend from Claim 1 and are allowable for the same reasons and also because they recite additional patentable subject matter.

New independent Claim 18 recites a heat insulated wall, comprising: first and second covering layers spaced apart from one another, the first covering layer defining a first aperture and having a first inner side facing the second covering layer, the second covering layer defining a second aperture and having a second inner side facing the first covering layer; an evacuated intermediate space at least partially defined by the covering layers and forming a vacuum enclosed within the heat insulated wall; a tube section extending axially between first and second opposing ends and having a first flange extending radially from the first end and a second flange extending radially from the second end, the tube section being disposed between the first and second covering layers with the first end adjacent the first aperture and the second end adjacent the second aperture; and a first vacuum-tight seal connecting the first flange to the first inner side and encircling the first aperture, and a second vacuum-tight seal connecting the second flange to the second inner side and encircling the second aperture.

The prior art, particularly Aue, Schmidberger and Shuko do not disclose a heat insulated wall as recited in Claim 18. More specifically, the prior art does not disclose,

among other things, "an evacuated intermediate space at least partially defined by the covering layers and forming a vacuum enclosed within the heat insulated wall," and "a first vacuum-tight seal connecting the first flange to the first inner side and encircling the first aperture, and a second vacuum-tight seal connecting the second flange to the second inner side and encircling the second aperture."

Therefore, Applicants respectfully request allowance of independent Claim 18. Claims 19-24 depend from Claim 18 and should be allowed for the same reasons and also because they recite additional patentable subject matter.

New independent Claim 25 recites a heat insulated wall formed by a process comprising the following acts: providing first and second covering layers spaced apart from one another, the first covering layer defining a first aperture and having a first inner side facing the second covering layer, the second covering layer defining a second aperture and having a second inner side facing the first covering layer, an enclosed intermediate space being disposed between the covering layers and at least partially defined by the covering layers; providing a tube section extending axially between first and second opposing ends and having a first flange extending radially from the first end and a second flange extending radially from the second end, the tube section being disposed between the first and second covering layers with the first end adjacent the first aperture and the second end adjacent the second aperture; connecting the first flange to the first inner side and with a first vacuum-tight seal encircling the first aperture; connecting the second flange to the second inner side with a second vacuum-tight seal encircling the second aperture; and evacuating air from the intermediate space and forming a vacuum enclosed within the heat insulated wall.

The prior art, particularly Aue, Schmidberger and Shuko do not disclose a heat insulated wall formed by a process as recited in Claim 25. More specifically, the prior art does not disclose, among other things, "connecting the first flange to the first inner side and with a first vacuum-tight seal encircling the first aperture," "connecting the second flange to the second inner side with a second vacuum-tight seal encircling the second aperture," and "evacuating air from the intermediate space and forming a vacuum enclosed within the heat insulated wall."

Therefore, Applicants respectfully request allowance of independent Claim 25. Claims 26-27 depend from Claim 25 and should be allowed for the same reasons and also because they recite additional patentable subject matter.

New independent Claim 28 recites a method for making a heat insulated wall comprising first and second covering layers spaced apart from one another, the first covering layer defining a first aperture and having a first inner side facing the second covering layer, the second covering layer defining a second aperture and having a second inner side facing the first covering layer, an enclosed intermediate space being disposed between the covering layers and at least partially defined by the covering layers, and a tube section extending axially between first and second opposing ends and having a first flange extending radially from the first end and a second flange extending radially from the second end, the method comprising the following acts: positioning the tube section between the first and second covering layers with the first end adjacent the first aperture and the second end adjacent the second aperture; connecting the first flange to the first inner side and with a first vacuum-tight seal encircling the first aperture; connecting the second flange to the second inner side with a second vacuum-tight seal encircling the second aperture; and evacuating air from the intermediate space and forming a vacuum enclosed within the heat insulated wall.

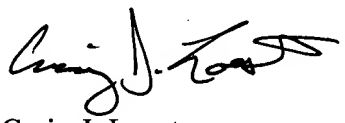
The prior art, particularly Aue, Schmidberger and Shuko do not disclose a method for making a heat insulated wall as recited in Claim 28. More specifically, the prior art does not disclose, among other things, "connecting the first flange to the first inner side and with a first vacuum-tight seal encircling the first aperture," "connecting the second flange to the second inner side with a second vacuum-tight seal encircling the second aperture," and "evacuating air from the intermediate space and forming a vacuum enclosed within the heat insulated wall."

Therefore, Applicants respectfully request allowance of independent Claim 28. Claims 29-30 depend from Claim 28 and should be allowed for the same reasons and also because they recite additional patentable subject matter.

CONCLUSION

In view of the above, entry of the present Amendment and allowance of Claims 1-12 and 15-30 are respectfully requested. If the Examiner has any questions regarding this amendment, the Examiner is requested to contact the undersigned. If an extension of time for this paper is required, petition for extension is herewith made. Please note that Applicants have changed representation and are now represented by new counsel. The formal Revocation of Power of Attorney / New Power of Attorney and Change of Correspondence Address documents were previously filed in a separate paper.

Respectfully submitted,



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